

WHAT WE CLAIM IS:

1. A resistance-heating element comprising a cylindrical heating portion and a pair of terminals formed on an outer peripheral surface thereof, wherein:

5 a thermal shield for cutting off radiant heat from said heating portion is joined to each terminal at a spacing from said outer peripheral surface,

another thermal shield differing in polarity is opposed to said one thermal shield with an insulating
10 space located therebetween,

a thermal shield portion is found at a site other than both ends of a straight line for joining an end of the outer peripheral surface of said thermal shield that faces the insulting space with an end of an inner
15 peripheral surface thereof or an end of an inner peripheral surface of said another thermal shield of different polarity, and

an opposite thermal shield exists on a straight line that joins the ends of the outer and inner peripheral
20 surfaces of the thermal shield that faces at least one of the insulating spaces.

2. The resistance-heating element according to claim 1, wherein said heating element is in a cylindrical form and the heat shields are provided with their outer peripheral
25 surfaces located concentrically with respect to

3. The resistance-heating element according to claim 1, wherein at least a juncture of the outer peripheral surface of the heating portion and each

terminal is free from any planar portion.

4. The resistance-heating element according to claim 2, wherein at least a juncture of the outer peripheral surface of the heating portion and each
5 terminal is free from any planar portion.

5. The resistance-heating element according to claim 1, wherein the heating element is a zirconia-based heating element.

6. The resistance-heating element according to
10 claim 2, wherein the heating element is a zirconia-based heating element.

7. The resistance-heating element according to claim 3, wherein the heating element is a zirconia-based heating element.

15 8. The resistance-heating element according to claim 4, wherein the heating element is a zirconia-based

9. An electric resistance furnace including a center furnace body comprising an axially vertical, hollow heating element and holders located below and above said
20 heating element wherein each holder comprises a heat-insulating member having an outside diameter defined by a maximum diameter of a terminal of said heating element and a preheating means located with a gap from a surface of said center furnace body wherein said preheating means
25 comprises a preheating element formed on a cylindrical inner wall surface of a heat-insulating member, wherein:

a pair of terminals is formed on an outer peripheral surface of said hollow heating element,

a thermal shield for cutting off radiant heat from said heating portion is joined to each terminal at a spacing from said outer peripheral surface,

another thermal shield differing in polarity is
5 opposed to said one thermal shield with an insulating space located therebetween,

a thermal shield portion is found at a site other than both ends of a straight line for joining an end of the outer peripheral surface of said thermal shield that
10 faces the insulting space with an end of an inner peripheral surface thereof or an end of an inner peripheral surface of said another thermal shield of different polarity, and

an opposite thermal shield exists on a straight line
15 that joins the ends of the outer and inner peripheral surfaces of the thermal shield that faces at least one of the insulating spaces.

10. The electric resistance furnace according to claim 9, wherein the heating element is a zirconia-based
20 heating element.